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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,030	10/26/2001	Hong-Goo Kang	2000-0588	5014

7590 07/07/2005
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EXAMINER

RIVERO, MINERVA

ART UNIT PAPER NUMBER

2655

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/002,030	Applicant(s) KANG ET AL.	
	Examiner Minerva Rivero	Art Unit 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/10/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Responding to the Office Action mailed 9/09/2005, in the Remarks filed on 1/10/2005, Applicant amended the specification submitted 10/26/2001 to correct language errors. Furthermore, Applicant amended claims 2-3 and 16-17, and submitted arguments to traverse the rejection of claims 1-22.

Response to Arguments

2. Applicant's arguments filed 1/10/2005 have been fully considered but they are not persuasive.

Regarding claims 1 and 12, Applicant argues that Westerlund *et al.* perform the disclosed method in an encoder and not in a decoder (p. 9). Furthermore, Applicant argues that an original voice input signal does not comprise a reference signal based on a received communication.

The Examiner cannot concur with the Applicant. Westerlund *et al.* disclose adjusting the operational parameters of a decoder (Col. 2, Lines 26-30). In the method disclosed by Westerlund *et al.* a decoder is included in the encoding side as required by

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the analysis-by-synthesis procedure. The input speech, which is a received communication segmented into frames, serves as a reference signal for the analysis-by-synthesis procedure performed within the method disclosed by Westerlund *et al.*. The analysis-by-synthesis procedure, as well known in the art, involves the comparison of a reference signal to an iteratively produced signal with the objective of minimizing the difference between the two, resulting in the finding of a combination of parameters that produces the signal that minimizes the aforementioned difference. Therefore the claims stay rejected.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Westerlund *et al.* (U.S. 6,757,654).

5. Regarding claims 1 and 12, Westerlund *et al.* disclose a method/apparatus for

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mitigating errors in frames of a received communication, comprising (1) determining a reference signal based on the received communication (Col 1, Lines 58-60), (2) determining a modified reference signal based on the received communication (Col 2, Lines 11-14) and (3) adjusting an adaptive codebook gain based on a difference between the reference signal and the modified reference signal (Col 2, Lines 15-30; Col 4, Line 66 – Col 5, Line 26).

6. Regarding claims 2 and 13, Westerlund *et al.* disclose the method/apparatus wherein the reference signal is determined based on transmitting parameters of the received communication (Col 2, Lines 31-44; Col 4, Lines 25-32).

7. Regarding claims 3 and 14, Westerlund *et al.* disclose the method/apparatus wherein the transmitting parameters include at least a long-term prediction lag, fixed codebook, adaptive codebook gain vector g_p , fixed codebook gain vector g_c and linear prediction coefficients $A(z)$ (Col 2, Lines 56-62; Col 3, Lines 24-33; Col 13, Line 58-Col 14, Line 7).

8. Regarding claims 4, 6, 15 and 17, Westerlund *et al.* disclose the method/apparatus wherein the reference signal is determined by adding an adaptive codebook vector with a fixed codebook vector to form an excitation signal and passing the excitation signal through a synthesis filter (Col 2, Lines 50-62; Col 19, Lines 27-29).

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9. Regarding claims 7 and 18, Westerlund *et al.* disclose the method/apparatus wherein the adaptive codebook vector is based on at least the long-term prediction lag and the fixed codebook vector is based on the fixed codebook (Col 1, Lines 39-57; Col 3, Lines 14-33; Col18, Lines 11-43).

10. Regarding claims 5, 8, 16 and 19, Westerlund *et al.* disclose the method/apparatus wherein the adaptive codebook vector is amplified by an adaptive codebook gain vector g_p and the fixed codebook vector is amplified by a fixed codebook gain vector g_c prior to being added together to form the excitation signal (Col 4, Lines 25-32; Col 4, Line 66-Col 5, Line 26).

11. Regarding claims 9 and 20, Westerlund *et al.* disclose the method/apparatus wherein the difference between the reference signal and the modified reference signal is based on a mean squared error between the reference signal and the modified reference signal (Col 2, Lines 15-24; Col 4, Lines 13-15).

12. Regarding claims 10 and 21, Westerlund *et al.* disclose the method/apparatus wherein the difference between the reference signal and the modified signal is based on the mean squared error between the reference signal and the modifying reference signal, wherein the difference is minimized (Col 2, Lines 15-30; Col 4, Lines 13-15; Fig.3, element 316).

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13. Regarding claims 11 and 22, Westerlund *et al.* disclose the method/apparatus wherein the difference between the reference signal and the modified reference signal is minimized according to the equation: $\min_{g'_p, g'_c} (N_s - 1) \sum_{n=0}^{N_s-1} (h(n) * (u(n) - (g'_p v'(n) + g'_c c'(n))))^2$ where N_s is a subframe size and $h(n)$ is an impulse response corresponding to $1/A(z)$ (Col 2, Lines 15-30; Col 4, Lines 3-15).

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Scott *et al.* (US 5,642,465) disclose a speech coding method of obtaining quantization values of a synthesis filter based on the spectral state of the speech signal in order to attain an appropriate energy distribution.

Chu *et al.* (Subband ADPCM coding for wideband audio signals using analysis-by-synthesis quantization scheme, Proceedings ISSIPNN, April 1994) disclose an analysis-by-synthesis quantization scheme.

Wang *et al.* (A voicing-driven packet loss recovery algorithm for analysis-by-synthesis predictive speech coders over Internet, IEEE Transactions on Multimedia, March 2001) disclose a packet loss recovery algorithm.

Noll *et al.* (Reconstruction of missing speech frames using sub-band excitation, Proceedings of the IEEE-SP, June 1996) disclose reconstruction of missing frames which involves analyzing the speech signal immediately preceding the missing frame and retaining important speech parameters while generating the substitute signal.

De Martin *et al.* (Improved frame erasure concealment for CELP-based coders, ICASSP Proceedings, June 2000) disclose a frame erasure concealment algorithm for CELP coders.

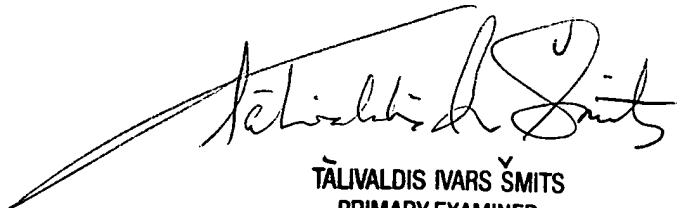
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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minerva Rivero whose telephone number is (571) 272-7626. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Ivars Smits can be reached on (571) 272-7628. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MR 6/29/05



TĀLIVALDIS IVARS ŠMITS
PRIMARY EXAMINER